FOREST PEST MANAGEMENT
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AN EVALUATION OF PESTS IN BUCK MEADOW CAMPGROUND, KINGS RIVER RANGER DISTRICT, SIERRA NATIONAL FOREST

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PSW FOREST AND RANGE EXPERIMENT STATION
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ABSTRACT

Buck Meadow Campground was evaluated for pests by Forest Pest Management personnel in August, 1983. Tree cover in the campground was almost entirely lodgepole pine, and although no tree mortality was present the factors that may contribute to future tree death include the mountain pine beetle, dwarf mistletoe and injuries caused by campground visitors. Alternatives to help reduce pest impact include lowering basal areas of overstocked tree aggregations, treating dwarf mistletoe infections, informing campers of the harm done by injuring trees, and establishing pest-resistant plant species.

INTRODUCTION

Buck Meadow Campground (Kings River District) was visited by John Pronos and Dave Schultz, FPM plant pathologist and entomologist, respectively, in August, 1983. The purpose of the visit was to evaluate pest conditions and provide input for a vegetation management plan. A campground rehabilitation plan has already been prepared for this 7-unit facility.

OBSERVATIONS AND DISCUSSION

Tree cover is almost pure lodgepole pine and distribution varies from open areas to dense aggregations (>400 sq. ft. BA/acre) of pole-size trees. Numerous signs of unsuccessful attacks by the mountain pine beetle (Dendroctonus ponderosae) were seen on some pines, although no dead or dying trees were found within the campground. Many trees had an

excessive amount of mechanical injury, and most of this damage appeared to be caused by axes and knives. The only disease seen was lodgepole pine dwarf mistletoe, and it was confined to the northwestern quarter of the campground. Mistletoe infections were in the slight and moderate categories (Hawksworth 6-Class rating system), and very few witches brooms were observed.

The many trees that have been unsuccessfully attacked or tested by the mountain pine beetle at Buck Meadows indicates that some of the pines are under stress. Factors that may be contributing to this stress include mechanical injury, dwarf mistletoe infection and overstocked tree aggregations. If mountain pine beetle attacks are successful, a pheromone will be released which will draw more beetles toward that site. Some beetles may land on adjacent trees and attempt to colonize them. The most likely result of a mountain pine beetle attack in a densely stocked aggregation of diseased and injured lodgepole pine is a group kill that could involve most of the trees at an individual campsite.

MANAGEMENT ALTERNATIVES

1. Do nothing. Without taking any action to reduce pest impact, we would expect some annual tree mortality due to the mountain pine beetle. Mortality would not be scattered but would tend to occur in groups. As dense aggregations of trees grow and basal areas increase, competition between trees will also increase. Dwarf mistletoe-infected trees that eventually reach ratings of 5 or 6, using the Hawksworth system, will be likely targets for the mountain pine beetle. In short, doing nothing means that pests and tree stress will gradually remove desirable trees from the campground. Severe weather conditions such as drought could easily accelerate this anticipated mortality.

2. Reduce Tree Stress

a) Thin overstocked aggregations. The intent of this treatment is to release residual trees which will increase vigor and help to avoid bark beetle injury. During thinning, trees with serious mechanical damage or dwarf mistletoe infections can be removed. Marking guidelines may be based on either spacing criteria or basal area targets.

b) Reduce dwarf mistletoe impact. At present this parasite is not at serious levels, but it will become worse with time. In addition to removing dwarf mistletoe-infected trees during thinning, other individual tree treatments are available. Sanitation cutting of heavily-infected trees or pruning out all infections from overstory trees is appropriate when the priority is to either retain a lodgepole pine understory or to plant lodgepole pine. Pruning out all infections is feasible when dwarf mistletoe is rated slight or moderate (Hawksworth ratings of 3 or less) and confined to the lower one-half crown. Pruning only witches' brooms from heavily-infected desirable trees will prolong tree life, but this method does not remove all dwarf mistletoe and is most acceptable when there is no susceptible understory. Buffer strips are areas free of any mistletoe-susceptible trees and may be used to

prevent disease spread. They may be constructed by removing host trees. Also when planning dwarf mistletoe treatments, open areas, roads, streams, meadows or adjacent stands of non-host trees can be utilized as buffers.

c) Educate Campers. Publications, such as the one enclosed, entitled "Trees Need Their Skin Too" could be made available to campers and might help to reduce the amount of needless mechanical injury. Posting informative signs near damaged trees may also be beneficial.

3. Plant species other than lodgepole pine. The true firs and Jeffery pine are not hosts for either the mountain pine beetle or the dwarf mistletoe present in the campground. Planting these conifers, or native shrubs, in existing openings or in holes created by future mortality would help minimize pest impact. Another advantage to Jeffrey pine is that it is normally longer lived than lodgepole pine. Additionally, any hardwood trees that may be suitable for the campground site would also be resistant to the insects and diseases currently active at Buck Meadow.